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## **ABSTRACT**

## THERMALLY STABLE, NON-WOVEN, FIBROUS PAPER, DERIVATIVES THEREOF, AND METHODS FOR MANUFACTURING THE SAME

A thermally stable, non-woven, fibrous paper comprising at least one polymer represented by structural formula I:

$$R_1$$
 $R_2$ 
 $R_3$ 
 $R_4$ 
 $R_5$ 
 $R_4$ 
 $R_7$ 
 $R_8$ 
 $R_8$ 
 $R_8$ 
 $R_8$ 
 $R_9$ 
 $R_9$ 

wherein  $R_{1-6}$  are the same or different and comprise H, a hydroxyl group, a straight or branched alkyl, cycloalkyl, polycycloalkyl, heterocycloalkyl, alkaryl, alkoxy, aryl, aralkyl, alkenyl, or alkynyl group containing approximately 1 to approximately 50 carbon atom(s), carbonyls, esters, carbonates, amides, ketenes, epoxides, a silyl or siloxyl group containing approximately 1 to approximately 50 silicon atom(s), and combinations thereof; wherein  $X_{1-4}$  are the same or different and comprise N, O, S, or Se; and wherein n is an integer ranging in value from 1 to approximately 10,000.